

**VEHICLE CRASH SIMULATOR  
WITH DYNAMIC MOTION SIMULATION**

ABSTRACT OF THE DISCLOSURE

5       A vehicle crash simulator employs a plurality of actuators to simulate motions or forces of a crash event. The vehicle crash simulator includes a simulation platform supporting a test specimen or vehicle for analysis. The platform is accelerated  
10      along a crash acceleration trajectory and forces are imparted to the platform to simulate a crash pulse or event. Forces are imparted to the simulation platform by a plurality of actuators "on-board" or coupled to the simulation platform for dynamic motion  
15      simulation. Multi-axial forces  $F_x$ ,  $F_y$ ,  $F_z$  are imparted to simulate complex crash motions or forces for realistic crash testing.